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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,104	11/13/2001	Igor Katz	KATZ10	6460

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EXAMINER
AVELLINO, JOSEPH E

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/987,104	KATZ ET AL.
	Examiner	Art Unit
	Joseph E. Avellino	2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>13 November 2001</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-6</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-6</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>13 November 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All   b) ☐ Some * c) ☐ None of:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>02/13/02, 07/16/02</u>.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-6 are pending in this examination; claim 1 independent.

Priority

2.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Information Disclosure Statement

3.   The information disclosure statements (IDS) submitted on February 13, 2002 and

July 16, 2002 have been considered by the examiner. See enclosed PTO-1449 papers.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claims 2-4 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

6.   Claims 2 and 3 recite the limitation "wherein step (e) includes" and "wherein step

(c) includes" respectively, however there is no step e or c involved. Correction is

required.

7.   Claim 4 recites a step (f), however there is no steps a-e. Correction is required.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, and 3- 6 are rejected under 35 U.S.C. 102(b) as being anticipated by

Falls et al. (USPN 5,991,771) (hereinafter Falls).

9.   Referring to claim 1, Falls discloses a distributed system including a server

managing a master volume of data including at least a plurality of at least one static

attribute and at least one dynamic attribute whose prevailing values in the master

volume of data are respectively updated and not updated as a consequence of a

command from a client, and at least two clients C1 and C2 each managing a volume of

data intended to mirror the master volume of data, a method for data mirroring

restoration at a client freshly reconnected to the server after a communication downtime

period, the method comprising the steps of:

storing prevailing values of dynamic attributes of the master volume of data in temporary storage at the server (i.e. current PTID) (col. 15, lines 49-54);

storing prevailing values of static attributes of the master volume of data in persistent storage at the server (i.e. change updates) (col. 15, lines 49-54);

providing the server with a master synchronization counter V_s incremented by the updating of the prevailing values of one or more static attributes in the master volume of data as a consequence of a command from a first client C1 of the at least two clients (i.e. PTID of the first server) (col. 14, line 45 to col. 15, line 12);

providing each client with a synchronization counter V_c (i.e. the PTID of the other servers), the synchronization counter V_{c2} of a second client C2 of the at last two clients only being synchronized with the master synchronization counter V_s on the successful uploading of the prevailing values of the static attributes updated in the master volume of data as a consequence of the command from the first client C1 whereby its volume of data mirrors the master volume of data (i.e. when requested by a user) (col. 16, lines 24-34; col. 17, lines 1-37);

uploading from the master volume of data to the freshly reconnected client's volume of data the prevailing values of all its dynamic attributes (i.e. updated PTID) and, in the case that the synchronization counter $V_{c2} < V_s$, the prevailing values of at least all of its static attributes whose prevailing values were updating during the communication downtime period, otherwise in the case that $V_s = V_{c2}$, taking no data mirroring restoration action in respect of the static attributes (A has the last PTID of 50:14, whereas B has the PTID of 50:10, therefore A will transmit the updates of 50:11 to

50:14, and therefore will have a PTID of 50:14 as well as all updates corresponding up
to that point, whereas the PTID of both A and B is 150:13, therefore no data mirroring
occurs, since no updating has been done since the last updating) (col. 17, lines 1-37).

10.   Referring to claim 3, Falls discloses providing the server with a transaction log
(i.e. update log or update stream) for listing up to N data object identifiers of data
objects containing at least one static attribute on a FIFO basis (updates are transmitted
50:11 up to 50:14, thereby the oldest is updated first) in respect of the updating of the
prevailing values of one or more of their static attributes, and uploading from the master
volume of data to the freshly reconnected client's volume of data the prevailing values
of all the static attributes of the last V_S-V_{C2} data objects listed in the transaction log in
the case that V_S-V_{C2} <= N (i.e. only updates 50:11-50:14 are transmitted, not 50:1-
50:10, since the server has already received those updates) (col. 17, lines 1-27).

11.   Referring to claim 4, Falls discloses when the transaction log is full, deleting an
earlier listing of a data object therefrom, if it exists, on adding the same data object
thereto, whereby the transaction log (i.e. replica managers 46) contains at most only a
single listing of a data object (i.e. PTID), if at all (i.e. the replica manager keeps the last
transaction number for each PTID)(col. 20, lines 42-59).

12.   Claims 5 and 6 are rejected for similar reasons as stated above. Since claims 5

and 6 are multiple dependent claims, they have been treated as depending upon claim

1.

        Claims 1-3, and 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by

Birkler et al. (USPN 6,516,314) (hereinafter Birkler).

13.   Referring to claim 1, Birkler discloses a distributed system including a server

managing a master volume of data including at least a plurality of at least one static

attribute and at least one dynamic attribute whose prevailing values in the master

volume of data are respectively updated and not updated as a consequence of a

command from a client, and at least two clients C1 and C2 each managing a volume of

data intended to mirror the master volume of data, a method for data mirroring

restoration at a client freshly reconnected to the server after a communication downtime

period, the method comprising the steps of:

        storing prevailing values of dynamic attributes of the master volume of data in

temporary storage at the server (i.e. change counter) (e.g. abstract);

        storing prevailing values of static attributes of the master volume of data in

persistent storage at the server (i.e. change updates) (col. 2, lines 30-49);

        providing the server with a master synchronization counter V_s incremented by the

updating of the prevailing values of one or more static attributes in the master volume of

data as a consequence of a command from a first client C1 of the at least two clients
(i.e. change counter stored in first database) (e.g. abstract);

    providing each client with a synchronization counter V_c (i.e. the change counter
stored at other devices), the synchronization counter V_{c2} of a second client C2 of the at
last two clients only being synchronized with the master synchronization counter V_s on
the successful uploading of the prevailing values of the static attributes updated in the
master volume of data as a consequence of the command from the first client C1
whereby its volume of data mirrors the master volume of data (i.e. when requested by a
second database) (e.g. abstract; Figures 1-3D, ref. 30, 540-570);

    uploading from the master volume of data to the freshly reconnected client's
volume of data the prevailing values of all its dynamic attributes (i.e. updated change
counter) and, in the case that the synchronization counter $V_{c2} < V_s$, the prevailing values
of at least all of its static attributes whose prevailing values were updating during the
communication downtime period, otherwise in the case that $V_s = V_{c2}$, taking no data
mirroring restoration action in respect of the static attributes (submitting entities of the
change log occurring after the submitted change counter) (col. 2, line 45 to col. 3, line
13).

14.   Referring to claim 2, Birkler discloses uploading the prevailing values of all the
static attributes from the master volume to the client volume in the case that the
counters $V_{c2} < V_s$ (i.e. slow sync) (Figures 3B-3D, ref. 360, 480; and related portions of
the disclosure).

15.   Referring to claim 3, Birkler discloses providing the server with a transaction log

(i.e. change log) for listing up to N data object identifiers of data objects containing at

least one static attribute on a FIFO basis (i.e. oldest entries of the change log are sent

first) in respect of the updating of the prevailing values of one or more of their static

attributes, and uploading from the master volume of data to the freshly reconnected

client's volume of data the prevailing values of all the static attributes of the last V_S-V_{C2}

data objects listed in the transaction log in the case that V_S-V_{C2} <= N (col. 3, lines 1-13).

16.   Claims 5 and 6 are rejected for similar reasons as stated above. Since claims 5

and 6 are multiple dependent claims, they have been treated as depending upon claim

1.

Claim Rejections - 35 USC § 103

17.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

18.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Falls in

view of Birkler.

19.   Referring to claim 2, Falls discloses the invention substantively as disclosed in

claim 1. Falls does not disclose uploading all static values from the master volume of

data when the synchronization counter is $V_{c2} < V_s$. In analogous art, Birkler discloses

another method to update a mirror database wherein all static values from the master

volume of data when the synchronization counter is $V_{c2} < V_s$ (Figures 3B-3D, ref. 360,

480; and related portions of the disclosure). It would be obvious to a person of ordinary

skill in the art at the time the invention was made to combine the teaching of Falls with

Birkler since Falls discloses that a multitude of mobile computers can be connected with

the invention such as PDA's, laptops, and palmtops (col. 3, lines 35-45). This would

lead one of ordinary skill to search for other computer devices with which would benefit

from synchronizing databases with each other, Eventually finding the system of Birkler

which discloses being able to synchronize with pagers and car cradles (col. 4, lines 21-

38).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Birkler in view of Falls.

20.   Referring to claim 4, Birkler discloses the invention substantively as disclosed in claim 3. Birkler furthermore discloses that the transaction log can be a fixed size, pushing out older changes as new ones are added (col. 5, lines 5-10), however does not disclose only one listing of a data object. In analogous art, Falls discloses another method of updating a mirror database wherein the transaction log (i.e. replica managers 46) have the last transaction (i.e. last transaction per PTID) that has been committed (col. 20, lines 43-54). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Falls with Birkler since Birkler discloses that the updating method is not limited in direction and can be performed in either direction (col. 6, lines 20-33). This would lead one of ordinary skill in the art to search for other methods of database updating which allow bi-directional updating, and would eventually lead to Falls with its bi-directional database updating system (e.g. abstract; col. 17, lines 1-28).

Conclusion

21.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

22.   Mosher, Jr. et al. (USPN 6,785,696) discloses replication of distributed databases that span multiple primary nodes.

23. Tavares et al. (USPN 5,307,487) disclose database synchronization with consistency determined by entry and exit counters used on both update and retrieval.

24. Draper et al. (USPN 5,924,096) discloses distributed database indexed into tags to track events according to type, update cache, create virtual update log on demand.

25. Boothby et al. (USPN 6,30,568) discloses synchronization of databases.

26. Alley et al. (USPN 5,710,922) discloses synchronization and archiving information between computer systems.

27. Bodnar et al. (USPN 6,295,541) discloses synchronizing two or more datasets.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (571) 272-3905. The examiner can normally be reached on Monday-Friday 7:00-4:00.
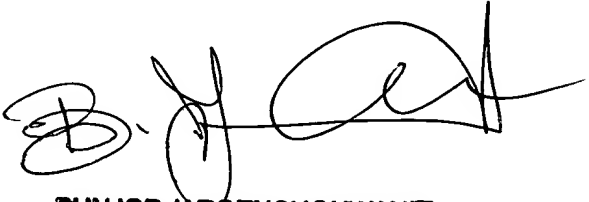
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

JEA
November 18, 2004

BUNJOB JAROENCHONWANIT
PRIMARY EXAMINER